Over the ☽

Hypersurreal • 3 Dec 2023

$$☽^\circ = ☽$$

Welp.. I think I've officially gone *loony*! 😅

I can't stop thinking about *the moon*.. I learned about ⊚ (sunny) & ☽ (loony) at the same time:

$$⊚ = \{0*, 1*, 2*, 3*, ...\}$$

$$☽ + 0 = ☽ + *1 = ☽ + *2 = ... = ☽ + ☽ = ☽$$

The interesting thing to me is that since $☽ + n = ☽$ we have $☽ + ⊚ = ☽$. It may not be *that* interesting, but I think it's a beautiful equation.

Additionally, we have $☽n = ☽$, which leads to another beautiful equation:

$$☽^{☽} = ☽$$

A part of what has me in *lunatic* mode are 2 papers I recently found:

- Impartial games with entailing moves
- A complete solution for a nontrivial ruleset with entailing moves

In the first paper the authors introduce **affine** impartial / normal play games.

While most of the paper is above my head, it did inspire an idea!

Can ∞ in affine impartial ($\mathbb{I}m^\infty$) & normal play ($\mathbb{N}p^\infty$) be replaced w/ on to form $\mathbb{I}m^{on}$ & $\mathbb{N}p^{on}$?

Affine games do not include transfinite nimbers (but they can produce infinitely many finite nimbers). I think replacing ∞ w/ on would result in a class of games that does include transfinite nimbers. I'm just not sure what, if anything, would break..

My basic line of thinking of why this might work is:

- $on = \{on|\} \in \mathcal{L}$ (right has no moves & left can pass) (1.1)
- $off = \{|off\} \in \mathcal{R}$ (left has no moves & right can pass) (1.2)
- $\forall x \in \mathbb{I}m^{on} \backslash \{off\}, on + x = on$ (1.3)
- $\forall x \in \mathbb{I}m^{on} \backslash \{on\}, off + x = off$ (1.4)
- $on + off = dud$ (1.5)

- $0 = \{off|on\}$

I'm not sure how to evaluate $\{on|on\}$ or $\{off|off\}$. I might however naively call these $on*$ & $off*$.

I playfully would call these **projective** games.

Oh right.. the big kicker in all of this? ☽ is equal to the set of no nimbers. That is:

$$☽ = \{\}$$

#NES to the max 💯

What I keep wondering is.. is ☽ "the" *master* idempotent?? 🤔 That which has the maximal *absorbing* nature (compared to let's say the *adsorbent* nature of the traditional empty set $\emptyset$).

In other news, after placing a bounty on a question about a multiplication *nimonic* (nimber mnemonic), I got an amazing answer! I initially randomly stumbled upon a simple multiplication nimonic after seeing 1 for addition. This led me to create a larger nimonic, which then led to trying to find the optimum configuration.

Enter **PG(3,2)**. There is a nice 3d graph that I have been considering updating with labels for the given solution. I started playing around with three.js as well (peep the new hypersurreal homepage).

Need. Coffee. TTFN

~StarGirl 🧙‍♀️